


# RF EXPOSURE EVALUATION REPORT

**Application No.:** GZCR2502000215AT  
**Applicant:** TDK SensEI (Dongguan) Co. Ltd  
**Address of Applicant:** Room 405, Building 6, No. 1, Xinke Road, Nancheng District, Dongguan City, Guangdong Province  
**Manufacturer:** TDK SensEI (Dongguan) Co. Ltd  
**Address of Manufacturer:** Room 405, Building 6, No. 1, Xinke Road, Nancheng District, Dongguan City, Guangdong Province  
**Factory:** VEXOS Dongguan Industrial Co., Ltd  
**Address of Factory:** Room 501, No. 2, Dongkeng Qianmei Road, Dongkeng Town, Dongguan City, Guangdong Province  
**Product Name:** edgeRX Gateway  
**Model No.:** SE5100204G-01  
**Trade Mark:**   
**Standard(s) :** KDB 447498 D01 V06  
 47 CFR Part 1.1310  
**Date of Receipt:** 2025-02-18  
**Date of Evaluation:** 2025-04-21  
**Date of Issue:** 2025-06-09

<b>Evaluation Result:</b>	<b>Pass*</b>
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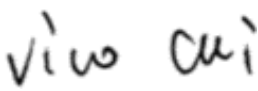
\* In the configuration evaluated, the EUT complied with the standards specified above.

*Ricky Liu*

Ricky Liu  
Manager



Revision Record			
Version	Report No.	Date	Remark
01	GZCR250200021504	2025-06-09	Original

Authorized for issue by:			
			
		Damon Guan/Project Engineer	
			
		Vico Cui/Reviewer	



## 2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB 447498 D01 V06	KDB 447498 D01 V06	47 CFR Part 1.1310	Pass

**Note:**

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: DC 12V for Gateway input.  
 Cable(s): None.  
 Please refer to the report GZCR250200021502 for BLE details  
 RF character: Please refer to the report GZCR250200021503 for 2.4GHz Wi-Fi details  
 Please refer to FCC ID: XMR201909EC25AFX for GSM/WCDMA/LTE details

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

### 4.2 Evaluating Location

All tests were performed at:  
 SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
 No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,  
 Guangdong, China 510663  
 Tel: +86 20 82155555  
 No tests were sub-contracted.



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### 4.3 Facility

The facility is recognized, certified, or accredited by the following organizations:

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

● **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

● **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

● **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

### 4.4 Deviation from Standards

None

### 4.5 Abnormalities from Standard Conditions

None



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## 5 Technical Requirements Specification

### 5.1 General Description of Applied Standards

KDB447498D01 General RF Exposure Guidance v06

#### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

### 5.2 RF Exposure Evaluation

#### 5.2.1 Limit & Test Method

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * P_i * R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$P_i$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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## 5.2.2 Conclusion

Normal use condition for Distance between antenna and body: > 20cm declared by applicant

For BT BLE

Antenna Gain: 6 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2402	3.9810717	0.71	1.18	0.00093	1	Complies
2440	3.9810717	2.94	1.97	0.00156	1	Complies
2480	3.9810717	<b>3.55</b>	2.26	<b>0.00179</b>	1	Complies

Note: Refer to report No. GZCR250200021502 for EUT test Max Conducted Peak Output Power value.

For 2.4G Wi-Fi

Antenna Gain: 6 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
802.11B						
2412	3.981071706	12.99	19.91	0.01577	1	Complies
2437	3.981071706	12.73	18.75	0.01485	1	Complies
2462	3.981071706	11.45	13.96	0.01106	1	Complies
802.11G						
2412	3.981071706	14.42	27.67	0.02191	1	Complies
2437	3.981071706	13.95	24.83	0.01967	1	Complies
2462	3.981071706	14.99	31.55	0.02499	1	Complies
802.11N20						
2412	3.981071706	14.49	28.12	0.02227	1	Complies
2437	3.981071706	14.3	26.92	0.02132	1	Complies
2462	3.981071706	<b>15.1</b>	<b>32.36</b>	<b>0.02563</b>	1	Complies

Note: Refer to report No. GZCR250200021503 for EUT test Max Conducted Peak Output Power value.



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For GSM/WCDMA/LTE

Normal use condition for Distance  
between antenna and body:

20cm declared by applicant

Band	Frequency (MHz)	Distance (m)	Max Power (dBm)	Power (W)	Ant. Gain (dBi)	Ant. Gain (Numeric)	MPE (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
GSM850	824.2	0.2	25.81	0.3811	6.00	3.98	0.30	0.55	Pass
GSM1900	1850.2	0.2	22.81	0.1910	6.00	3.98	0.15	1.00	Pass
WCDMA B2	1852.4	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
WCDMA B4	1712.4	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
WCDMA B5	826.4	0.2	25	0.3162	6.00	3.98	0.25	0.55	Pass
LTE B2	1850.7	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
LTE B4	1710.7	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
LTE B5	824.7	0.2	25	0.3162	6.00	3.98	0.25	0.55	Pass
LTE B7	2502.5	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
LTE B12	699.7	0.2	25	0.3162	6.00	3.98	0.25	0.47	Pass
LTE B13	779.5	0.2	25	0.3162	6.00	3.98	0.25	0.52	Pass
LTE B25	1850.7	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
LTE B26(814 - 824)	814.7	0.2	25	0.3162	6.00	3.98	0.25	0.54	Pass
LTE B26(824 - 849)	824.7	0.2	25	0.3162	6.00	3.98	0.25	0.55	Pass
LTE B38	2572.5	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass
LTE B41	2498.5	0.2	25	0.3162	6.00	3.98	0.25	1.00	Pass

The BT BLE, 2.4G Wi-Fi and GSM/WCDMA/LTE can be transmitted simultaneously, the result is 0.00179/1+0.02563/61+0.3/0.55=0.547665< 1.0

The EUT meet the Exemption Limits for Routine Evaluation – SAR Evaluation, so no SAR evaluation is required for the EUT.



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## 6 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2502000215AT

- End of the Report -



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